

# Montana Aeronautics Commission



Volume 13—No. 5

June, 1962

## MPA CONVENTION A SUCCESS HELENA NEXT YEAR



● Sammons, State President of the Montana Pilots Association.

As we remember the circus for it's bearded ladies, we will long remember the bearded men at the MPA State-wide convention in Cut Bank held May 18 and 19.

Early arrivals registered and met for an evening of fun Friday. Those who arrived Saturday registered at the airport, were issued their hats, tickets and name tags and headed for town. Ladies enjoyed a luncheon at the Elks Club, which was followed by a business meeting when officers for next year were elected. The MPA members present voted to hold their next meeting in Helena in 1963. Congratulations go to the new officers: Herb Sammons, Cut Bank, President; Russ Lukens,

Great Falls, Vice President; Winifred Lovelace, Bozeman, Tom Crum, Kalispell and John Vance, Helena serving as the group's new Board of Directors.

Montana Aeronautics Commission Director Chuck Lynch briefed the group on the year's activities of the Commission. Resolutions were passed by the pilots including endorsing the purchase of the Queen Air by the Commission.

After the business session, a miraculous change took place in this prosperous appearing group, when those present jumped into the hard times theme of the convention.



● Tippetts addresses Montana Pilots Association Convention.

Everyone enjoyed the excellent banquet and the talk by Joseph H. Tippetts, Assistant Administrator, FAA Western Region. During the banquet Rod Snider, Missoula, was named "Pilot of

the Year", and Winifred Lovelace and Ray Skovgaard accepted MPA Charters for the Gallatin Valley and Lewistown Hangars respectively.



● Lovelace and Skovgaard receive the charters for the new Gallatin and Lewistown Hangars.

After the banquet, a good band provided dance music. From the looks of the decorations and attire, an innocent by-stander may have thought the aviation industry had seen better days, but the comfortable garb of the hard times theme really put everyone at ease.

Sunday morning, the efficient local wakeup committee "quietly" got everybody up. After a delicious breakfast at the airport, sleepy pilots and dazed passengers hopped into their planes and lined up for the necessary controlled departures.

Some left bright-eyed and bushy-tailed; some left bushed



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**MONTANA AERONAUTICS  
COMMISSION**  
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Helena, Montana

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and blurry-eyed; Peggy Mitchell left planning to vacation in Utah; but everyone left thinking the past President Mark Etchart, the other officers and committees and the whole Cut Bank Hangar had done a bang-up job of this years convention.

See you in Helena next year!



●Friend from one of the colonies visits Montana Pilots Association convention. Became quite wordly and wordy.

June 20, 1913. Ens. W. D. Bilingsley is thrown out of a Wright hydroplane at an altitude of 1,600 feet, becoming the first Naval Aviator to be killed in an airplane accident. Safety belts, not used up to this time, are universally adopted following this accident.

June 26, 1948. Russian blockade of Berlin forces U.S. to dispatch squadrons of cargo and transport planes to Germany to carry food and supplies in to that city by air.

## 36TH BIRTHDAY CELEBRATED BY WESTERN

Another milestone in the annals of commercial aviation was celebrated April 17, as Western Air Lines, the nation's pioneer air carrier, marked its 36th anniversary.

The oldest continuously operated airline in the U.S., Western took to the skies on April 17, 1926, over a 651 mile route linking Los Angeles and Salt Lake City, via Las Vegas.

Comparative statistics underscore the heights to which WAL has soared since its maiden flight. In 1961, for example, the airline carried 1,529,137 passengers, more than 7,400 times the 209 customers Western served in 1926.

The Los Angeles-based company's present 34-city, 12-state, three-nation route system covers 9,717 miles, which reflects the new San Francisco to Las Vegas route and the addition of Sacramento, California as a WAL-served city, effective April 29.

On any single roundtrip flight today one of Western's jetliners frequently carries more passengers than the company transported in its entire initial year of operation.

## FAA ABOLISHES LIMITED FLIGHT INSTRUCTOR CLASSIFICATION

Issuance of limited flight instructor ratings was discontinued under new Federal Aviation Agency rules effective May 24th.

This classification was established in 1956 as a means of evaluating the competence of candidates for "full" flight instructor certificates. Students trained by holders of limited instructor ratings were required to take their flight tests from an FAA inspector.

Operational experience has shown this procedure is not necessary, and Part 20 of the Civil Air Regulations has been amended to abolish the limited instructor classification. Also eliminated is the requirement that flight instructor candidates must successfully train five applicants for pilot certificates or instrument ratings. Persons currently holding limited flight instructor certificates may exchange them for full

certificates without a further demonstration of competence. In the interim, they may exercise the privileges of flight instructors.

## MARK YOUR FUEL TANKS

Airplane owners are reminded of the Civil Air Regulations requirement for markings on or adjacent to the fuel filler cap or cover, to show the word "fuel", the minimum permissible fuel octane number for the engines installed and the usable tank capacity. It is important that these marking be kept in a legible condition.

Various dye coloring is added to aviation gasoline to indicate fuel grade. The following table lists the color standard which represents a particular fuel grade.

GRADE	COLOR
80/87	Red
91/96	Blue
100/130	Green
108/135	Orange
115/145	Purple

When the fuel grade includes a number of 100 or less, this number indicates octane number. If the number is 100 or above, it indicates the relative power that the engine can develop safely with equal knocking tendency and is known as performance number. When the grade includes two numbers such as Grade 100/130 or Grade 91/96, the first number of each pair indicates the rating at lean mixture conditions and the second the rating at rich mixture conditions.

At the Wright Brothers anniversary celebration at Kitty Hawk—just about the fanciest air show ever staged in the United States—a grizzled old-timer who was unaccustomed to such she-nanigans, watched with open mouth as four Sabrejets thundered toward the Wright Memorial Monument in a diamond formation at several hundred miles per hour. They flew in such a steady pattern that they seemed to be attached to one another. Just as they got over the monument, the jets zoomed straight upward, then suddenly went off in four different directions. At this, the old-timer paled and exclaimed, "Dern, I knowed them things wa gonna come apart!"



## DIRECTORS' COLUMN



America is an aeronautical nation. To date, we have had four Astronauts in space. We are elated with their success but not amazed. Why? Because we are day to day users of aviation. America does more flying, more manufacturing in aviation than any other nation in the world. The labor force in aviation and in aviation connected enterprises and the gross national payroll in industries connected with aviation now is in the number one place in the nation for the employment of peoples.

Flying Montana is in one of the upper positions in our great aeronautical nation. In August of 1958, Montana moved into first place in the nation for the ownership of general aviation type aircraft per capita. Montana held that position until the admission of the great State of Alaska to the Union. Even now, although Nevada's great corporate aircraft registration in relation to her population has moved them into second place, Montana still holds third place in the nation on per capita ownership as of the latest statistics available from Federal Aviation Agency.

However, at the general aviation level, including the flying business men, the flying sportsmen and the general aviation operators, Montana is still first in day to day business user ownership of aircraft.

In 1943, a group of far-sighted, energetic and aviation conscious men were formed into a committee by the Governor for the purpose of drafting proposed legislation which had been requested by the aviation interests within the State of Montana for presentation to the next Legislature. They voluntarily came up with a proposed tax upon their own industry and environment for the betterment of that industry and the aviation interests of the State.

What is "betterment"? The proposed legislation which came out of the 1945 Legislature as Montanas' first aeronautics act says it will be the "general supervision

of aeronautics within this State. It is empowered and directed to encourage, foster, and assist in the development of aeronautics in this State and to encourage the establishment of airports and other air navigation facilities".

We are charged with "The Protection and Promotion of Safety in Aeronautics", and "encouragement and development of aeronautics". We think we are accomplishing this by fostering aviation education in the schools, teacher workshops at our colleges, promotion of aerial soil conservation studies, flight instructor seminars, search and rescue operations, construction of border crossing, recreational and emergency landing strips, and assistance to municipalities on local developments. We believe this to be protection, promotion, encouragement and development of aeronautics. We believe providing well managed, carefully maintained and controlled aerial transportation for the use of State officials from any division of State Government to be promotion of safety in aeronautics. We feel that it will "encourage, foster, and assist in the development of aeronautics" in this State. The recent endorsement by the oldest organization of Montana aviation people clearly shows it to be in the best interests of an aerial, safety conscious, tax paying public, even when the aviation industry pays the bill.

### SNIDER SELECTED AS M.P.A. PILOT OF THE YEAR

Rodney D. Snider of Johnson Flying Service at Missoula, was named "Pilot of the Year" at the Montana Pilots Association convention at Cut Bank May 19th.

The following is an account of the incident that earned Snider the award.

#### Higgins Ridge Was Hell

There was no thermometer among the smoke jumpers trapped by the raging Nezperce National Forest fire, but their metal hats and canteens were so hot they couldn't touch them without blistering their fingers.

Logs felled to make the helistop where they had taken refuge were in flames.

The ground was hidden in white hot ashes, and they had to keep hopping around to prevent

the heat from penetrating their boots and blistering their feet.

One man's levis caught fire, and other smokejumpers slapped out the flames.

Another suffered arm burns. He hadn't time to put on a protective shirt before taking off from the Aerial Fire Depot. Hot air whipped over the ridge, and the fire's angry tongues lapped and flared on all sides. Superheated currents devoured the oxygen, and the smokejumpers were forced from one side of the ridge to the other in quest of breathable air. It was Aug. 4, 1961, and one of the worst fire seasons in the history of Idaho and Montana.

Atop Higgins Ridge in Idaho that afternoon were 20 smokejumpers—hardy men who parachute where needed to fight forest fires.

Earlier in the day an eight-man crew from Grangeville, Idaho had jumped in the area. Later 12 men from the Aerial Fire Depot at Missoula, Montana had parachuted to join them in the battle.

The smaller group had been flown to a jump spot in a Ford tri-motor plane, and the other men had parachuted from a DC-2 at noon.

Both planes were from the big fleet of fixed-wing aircraft and helicopters operated by Johnson Flying Service of Missoula, one of the most experienced organizations of mountain fliers in the world.

The smoke jumpers had carried two portable power saws with other gear and were cutting down trees and digging a ditch to cut off the roaring blaze.

Borate, a chemical that retards fire, had been dropped from Johnson Flying Service planes.

Everything might have been all right if it hadn't been for a front that moved in swiftly. The forest of Douglas fir was dry.

The fast-moving front created awesome conditions. The blaze was turned into what forest fire-fighting veterans call a "crown fire". Flames were whipped with fury along the tops of the giant trees, moving faster than a man can run.

The smokejumpers were in trouble.

Led by Fred Wolfrum, foreman of the 12-man group and ranking jumper, they made their way to



the only spot in the area where there was a chance for survival. That was the helispot that had been hacked out of the forest atop Higgins Ridge sometime before for Johnson Flying Service helicopters to land during the fire-fighting season. "Normally, we would have hiked out of the danger area," Wolfrum said, "but by 4:30 I knew we were trapped."

Wolfrum is a pro at fighting forest fires and works full time with the Forest Service at the Missoula Aerial Fire Depot. Most of the 19 men with him were college students who work only during the summer months when forest fires are at their worst.

Even though they are only seasonal on the job the college men are highly-qualified by reason of rigid personnel-selection process and a rigorous training program.

But on Higgins Ridge they faced a peril few men ever see. Wolfrum said his greatest fear was panic.

"If anybody had tried to run out of that spot it would have been too bad," he said. "In all likelihood they would have stumbled and fallen, and one mouthful of that hot ash would have finished them."

The smokejumpers had no communication link with their headquarters. More than once anxious eyes were cast upward in hope an aircraft would see them.

When the situation was about as bad as it could be somebody thought they heard a helicopter, but nobody could see anything flying. . . . .

At mid-afternoon Rodney Snider and Forest Ranger William R. Magnuson began looking for the smokejumpers. Snider piloted a Bell 47G-3 turbosupercharged helicopter, and the ranger was a passenger.

They were worried. Nobody had reported seeing the smokejumpers after they had bailed out, but the word was out that the Nezperce fire was spreading.

Snider and Magnuson flew over the mountains until they were almost out of fuel. They landed at an air strip at Moose Creek Ranger Station, gassed up and took off again. Smoke hung on the mountains, blackened by the fire over huge areas and alive with racing flames in others. Visibility was limited, and the wind, up to

60 miles per hour, made flying hazardous.

About 5:30 p.m. Magnuson spotted the smokejumpers. Snider decided to attempt their rescue.

The pilot is a veteran of the air. At the time he has been with Johnson Flying Service more than three years, flying airplanes and helicopters in the mountains.

He had more than 1,000 hours in fixed-wing ships and about 2,000 hours in helicopters. He flew Air Force helicopters on the DEW line on Baffin Island west of Greenland in temperatures as cold as 40 degrees below zero.

For Johnson, he had done agricultural spraying, seeding, rescuing sick, hurt and lost hunters and had hauled lumber, steel, cement and water by helicopter.

But for all that background the Higgins Ridge operation was what pilots call "hairly". It was tough, dangerous and called for courage and skill of the highest order.

Elevation of the ridge is about 7,000 feet above sea level, but the hot, thin air made for a density altitude of 12,500 feet, Snider calculated from his instruments. He was forced to make a downwind landing on the hot, ash-covered helistop. The helicopter's downwash stirred up clouds of ashes. Smoke and flames were all around. The pilot loaded two of the smokejumpers into the three-place cabin with him and took off, flying them out of danger and to a camp out of the fire area. Then he returned to the sizzling helistop.

On the second evacuation trip he carried four smokejumpers out. Two sat in the cabin with him, and two more rode belly down on the helicopters skid gears.

Back and forth from the helistop to the camp, the 47G-3 flew until everybody was safe. The evacuation was completed as darkness fell, about 8 p.m.

None of the smokejumpers suffered serious injury, but 12 were treated at a hospital for smoke burns of their eyes. The smokejumpers didn't know at the time of their rescue, but Snider hunted for them and made the decision to attempt the risky landings and repeated operations into the burning helistop entirely on his own.

He was not dispatched by anyone. He knew they were in the

area and was concerned. No one could have appreciated fully the gravity of their situation until they were spotted because there was no communication with them. Snider couldn't have been blamed had he chosen to fly back to his base, without landing on burning Higgins Ridge, and to notify the Forest Service of the smokejumpers' plight.

At time of his heroic mission Snider's wife, Gretchen, was in an advanced stage of pregnancy. A daughter, Lori, was born less than two months after the fire. They have a boy, Kenneth, 2.

Snider, 31, Denver native and Colorado State University graduate, 5 feet 6 inches, 145 pounds, is a soft-spoken, self-effacing individual.

Interviewed after his noteworthy rescue operation he directed all praise toward his helicopter. "I don't think any other 'copter could have done it. Afterward, we checked the ship and nothing was wrong. We just changed the oil."

## GROUND-AIR PHONE SERVICE

American Telephone and Telegraph Co., will build five new ground antennas to extend its development ground-air telephone service to the entire northeastern area of the U.S. The Federal Communications Commission has approved the move on a developmental basis. Pending before FCC is a proposed rule covering an AT&T petition to operate the system nationally. Experimental ground stations have been operated at Chicago, Washington, New York, Pittsburgh and Detroit. The new facilities would be built at Elmira, N.Y., Beckley, W. Va.; Dayton, Ohio, Vincennes, Ind., and Boston. Under the proposal, comments on which are to be submitted to FCC's Docket Section by June 11, air-line passengers and corporate aircraft could make or receive telephone calls. Calls are made through a special "aviation" switchboard operator. Capital, Northwest and United have participated in experiments to date.

June 28, 1911. Lincoln Beachey, in a Curtiss bi-plane, flies over Niagara Falls, down the Gorge, and under the bridge.



## Operator's Corner



Operator of the month is Robert S. (Bob) Boles, owner of Boles Aviation at Hardin, Montana.

Bob started flying in 1928 in a Travelair and soloed in a Robin. Both aircraft were powered by the OX-5 engine. His instructor was Clifford Clark of Valley City, North Dakota. Clark was a protégé of Ed Canfield. Canfield used to barnstorm Montana back in the thirties.

Boles was out of the flying game from 1932 until 1938 when he became an instructor for the CPT-WTS programs at Carleton College in Minnesota.

In 1944 Bob set up a flight service at Kenyon, Minnesota and brought his spray operation into Montana during the agricultural seasons from 1949 until 1954.

In 1954 he moved his flight operation from Minnesota to Montana and as the folks in Hardin will testify, Minnesota's loss was our gain.



Jeffrey Boles

Boles Aviation has specialized in agricultural and charter work which Bob says "has been very good to them". However, flight training for both private and commercial licenses is offered to the public. 80 and 100 octane fuel and minor maintenance services are available.

Bob and his wife, Cecilia, have four children; Jeffrey 15, Mike 11, Marke 25 and Roxanne 22.

Both of their sons are taking flight instruction and daughter Roxannes' husband is an Air Force B-52 pilot.

## DISASTER AREA FLYING TO BE REGULATED

Non-essential flying over disaster areas—such as plane or train wrecks, floods, forest fires, or hurricanes—hinders search and rescue operations and creates the danger of mid-air collision. This proposed rule will permit news aircraft, as well as other non-relief aircraft on official business, to fly within the disaster area above the altitudes being used by relief aircraft. A NOTAM issued by FAA would specifically define the geographical limits of the disaster area which could cover a maximum of five miles from the disaster site and extend from the surface to 2,000 feet. Comments on this proposal (Draft Release No. 62-17) should be submitted to the Docket Section, FAA, Washington 25, D.C., before June 21, 1962.

## HANDLEY PAGE DIES

Sir Frederick Handley Page, 76, British aviation pioneer and founder of the first aircraft construction company in Britain 53 years ago, died April 21 in London. He was chairman and managing director of the Handley Page company, the last of the independent aircraft companies in England. He was inventor of the slotted wing in 1921 and was known in Britain as the father of the heavy bomber. He built the first twin-engine bomber in World War I and the Handley Page Halifax four-engine bomber was considered by many to be the most efficient and economical bomber in World War II in Europe. He was president of the Royal Aeronautical Society from 1945 to 1947.



## CONGRATULATIONS!

### CERTIFICATES ISSUED RECENTLY TO MONTANA PILOTS

Dayton, Perry Alan, Havre, Student  
Harrington, Don Phillip, Butte, Student  
Reid, Philip Arthur, Butte, Student  
Leighland, Salmer A., Great Falls, Student  
Gee, John W., Great Falls, Student  
Turner, Charles Ray, Estacada, Ore., Student  
Anderson, Wesley R., Malta, Private ASEL  
Devine, Thomas J., Helena, Private ASEL  
Petelin, John A., Anaconda, Private  
Warrington, Gordon E., Bozeman, Private  
McKay, Robert H., Helena, Rotorcraft added to Com.  
Munroe, Richard J., Helena, Rotorcraft added to Com.  
Dawson, James H., Belt, Student  
Dawson, Martin Archie, Belt, Student  
Nicholas, Glen W., Dillon, Student  
Swindle, Donald Ray, Butte, Student  
Archer, Neil F., Great Falls, Student  
Huegner, Phil Dean, Cut Bank, Student  
Harrington, Robert Allen, Freat Falls, Student  
Powers, Vincent R., Missoula, Student  
Grant, Ralph S., Missoula, Student  
Ramberg, Clarence E., Inverness, Student  
Samsel, William Kirpatrick, Missoula, Student  
McLaughlin, Don J., Butte, Student  
Kidd, William L., Great Falls, Student  
Dopp, Gilbert C., Missoula, Private  
Gustin, Keith J., Kalispell, Private  
Lucas, Forrest C., Columbia Falls, Private  
Purdy, Glenda LaRita, Missoula, Private



Wordon, Donovan, Missoula, Blue Seal Certificate  
 Torrence, Richard V., Missoula, Douglas B-26 added to Com.  
 Courtnage, Donald R., Big Sandy, Student  
 Lester, James B., Helena, Private  
 Schendel, Dale W., Missoula, Student  
 Thomas, Gary E., Missoula, Student  
 Myers, Robert G., Cut Bank, Added ASEL, DC-3 & Inst. to Com.  
 Malcolm, Darrell B., Deer Lodge, Student  
 Briggs, Harold Boyd, Dell, Student  
 Mahlum, Ronald W., Livingston, Student  
 Cheyney, James R., Philipsburg, Student  
 Cox, Conrad L., Havre, Private ASEL  
 McCann, Paul G., Vaughn, Student  
 Hughes, Windell W., Hazlehurst, Ga. (Great Falls), Student  
 Harr, Robert W., Las Vegas (Great Falls), Student  
 Thomas, John O., Butte, Private ASEL  
 Wood, Lisle Eugene, Butte, Private ASEL  
 Miller, Gary, Great Falls, Student  
 Johnson, Geo. McClennan (Mac), Havre, Basic Ground Instructor  
 Keilman, Gail J., Miles City (Missoula), CFI Flight Inst.  
 Lutz, Stephen D., Denver (Missoula), Private ASEL  
 Whitford, Charles N., Reed Point, Student  
 Cunningham, David Rohm, Helena, Student  
 Hope, David W., Hamilton, Limited Flt. Instructor  
 Burgan, Robert E., Deer Lodge, Private ASEL  
 Pasha, Elvan Lee, Gallatin Gateway, Student  
 Iverson, Issaac Lee, Winnett, Student  
 Granlund, Barry John, Yucaipa, Cal. (Bozeman), Private ASEL  
 Elder, Paul W., Bozeman, Private ASEL  
 Hartson, Fred Charles, Havre, Private  
 Hoepfner, Peter Leonard, Sidney, Student  
 Johl, Daniel Wilbur, Pompeys Pillar, Student  
 Konopaski, Lawrence, Glasgow AFB, Student  
 Scott, George Guy, Outlook, Student

Johnson, Leonard A., Glasgow, Blue Seal Reissue of Private  
 Fredriksen, Arnold M., Culbertson, Blue Seal Reissue of Com.  
 Teague, Kneelon Edward, Billings, Student  
 Ledbetter, Beverly Carpenter, Malta, Private  
 Scheel, Charles P., Billings, Student  
 Mahon, Scott, Lewistown, Student  
 Hanks, Ferrel Elroy, Billings, Student  
 Miller, Theodore Julius, Opheim, Student  
 Elliott, Robert Clayton, Billings, Ltd. Flight Instructor  
 Hafer, Alex Rex, Jr., Billings, Private Reissuance  
 Arnold, Lorene Joanne, Great Falls, Student  
 Spranger, Paul Lawrence, Roundup, Student  
 Newman, Taylor William, Opheim, Private  
 Burke, Edward Eugene, Glendive, Private Reissuance  
 Jones, James William, Billings Student  
 Bauman, Don B., Moore, Student  
 Dernbach, Stephen A., Lewistown, Student  
 Smith, William D., Lewistown, Student  
 Milks, Benny Lee, Malta, Private  
 Larcombe, Mary Ann, Malta, Private

### COMING AVIATION EVENTS

June 11-13—Sixth National Conference on Aerospace Education, National Aviation Education Council, Seattle, Washington  
 June 11-29—Aviation Education Workshop, Montana State University, Missoula  
 June 18-20—National Association State Aviation Officials Summer Board Meeting, Reno, Nevada  
 June 11-July 13—Aviation Education Workshop, Eastern Montana College, Billings  
 June 13-July 3—Aviation Education Workshop, Northern Montana College, Havre  
 June 25-July 13—Aviation Education Workshop, Western Montana College, Dillon  
 July 4—Schoeby Airport Dedication, Breakfast 6 a.m., Dedication at 10 a.m.  
 July 29—Plentywood Fly-In Breakfast, 6 a.m. until noon. Noon until 4 p.m. old time picnic.

nic. Box lunches, recognition of old timers and pilots. Old time swimming suit style show. Diving exhibition. Horse shoes and other games. Transportation available from the airport. Theme—dress from 50 years ago. Sponsored by the Sherwood Pilots Association to help Plentywood celebrate its 50th anniversary

**NOTICE:** Helena, City-County Airport; about June 1, tower hours of operation 0400-2200 (4 a.m.-10 p.m.)

### ACCIDENT PREVENTION



**Bernard A. Geier,**  
Safety Agent, FAA Billings

V speeds, or the aircraft speed for a specific condition, must be understood to secure the ultimate in performance from a particular aircraft. Many V speeds are shown on the face of the airspeed indicator, but many are not. We will begin with the lowest of the V speeds.

Vmin—This is the lowest speed that a particular aircraft can maintain holding altitude with full power. This speed can be found in slow flight practice. During the takeoff from a soft field, it is possible to become airborne at a speed below Vmin due to the ground effect. In this case, you would be able to climb to a height equal to the length of the wing span of the aircraft. To get above this height, it will be necessary to allow the aircraft to accelerate to either the best angle or the best rate of climb. Collisions with obstructions have occurred from trying to climb at this Vmin speed.

Vx—This is the best angle of climb speed. (I remember that Vx is best angle by the four angles in the x). At this speed, the



aircraft will climb from the earth at the best possible angle. This will not be the best climb as shown on the verticle speed, but because of the slower airspeed, the angle will be steep and therefore the best angle speed should be used for a climb to clear an obstruction. In most aircraft this is an extremely steep attitude. Good engine cooling is not guaranteed in this climb, so that this speed should not be used on all climbs. Since the pitch attitude is extremely steep, all pilots should experience this attitude in their aircraft so that they will not hesitate to go to this speed when needed to clear an obstruction.

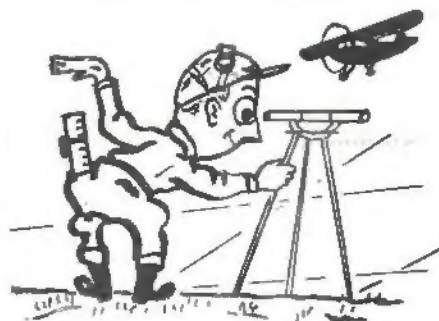
Vy—Vy is the best rate of climb speed. At this speed, the best rate in feet per minute will be achieved and good engine cooling will be guaranteed. In most aircraft, the best rate of climb will be accomplished with the flaps in the retracted position. The aircraft should be accelerated to this speed and held at this speed after take-off so that a safe altitude may be reached in the shortest period of time. This speed is determined in reference to a gross weight condition and would therefore give a greater rate of climb during light loading conditions. In the case of encountering severe downdraft conditions, a climb at this airspeed will give the best rate of climb to counteract the rate of descent created by the downdraft.

Vso—This speed is shown on your airspeed indicator as the low end of the white arc. The definition of Vso would be the stalling speed power off in the landing configuration, ie, gear and flaps fully extended. This speed is based on the aircraft at gross weight and would be True Indicated Airspeed or Calibrated Airspeed. If your airspeed indicator did not have errors due to its installation in the aircraft, the stall would occur at the lower end of the white arc. Most pilots handbooks have an Airspeed Correction Table showing the error due to installation. The particular table that I am looking at now shows that a TIAS of 56 mph would show 40 mph on the airspeed indicator, or an error of 16 mph. A TIAS of 67 mph would show 60 mph on the airspeed indicator. Utilizing your Vso, (this

manual states that Vso is 56 mph) an approach should be made at 1.4 times Vso. This would be a TIAS of 78.4 mph. The correction table shows an error at this speed of 4 mph, so that the indicated approach speed should be 74.4 mph. The speed over the fence should be 1.3 times Vso. In this case, it would be 72.8 mph over the fence and with an installation error of 4 mph, the indicated speed over the fence should be 68.8 mph. The aircraft should stall at 56 TIAS or 40 mph indicated. You should check your own aircraft at altitude by establishing a power off glide with gear and flaps down. Slowly rotate the aircraft as you would on a normal landing and check the indicated airspeed at the stall. This, then, will tell you if your airspeed indicator agrees with the Airspeed Correction Table.

Next month, more discussion on V speeds.

### AIRPORT DIVISION



By JAMES H. MONGER,  
Chief, Airports Division



CHINOOK: The Blaine County Airport Commission is now under way with a project consisting of lengthening the paved runway 1,000 feet at the Chinook airport.

HAMILTON: The Ravalli County Airport Commission has retained the engineering firm of Morrison and Maierle to conduct preliminary engineering for a proposed project on the Hamilton airport. This project will consist of a new 4,200 foot runway with holding aprons and a terminal apron. The cost of the project is estimated to be approximately

\$67,000. This office has granted \$1,000 to the Ravalli County Airport Commission for the purpose of financing 50% of the cost of the preliminary engineering.

GERALDINE: The Choteau County Airport Commission will soon be calling for bids for the construction of a runway extension and the paving of this runway at the Geraldine airport. This runway will be 2,900 feet by 75 feet and total cost of the project is estimated to be about \$60,000. This office is participating in this project with a \$10,000 loan.

BOZEMAN: An airport reconstruction project is nearing completion at Gallatin Field. This project includes the reconstruction of the northwest/southeast runway and the construction of a new parallel taxiway to this runway.

BUTTE: A new administration building is near completion at the Silver Bow County Airport. This new structure is of a unique design and as well as being an architectural show piece, it is very functional. This administration building will have offices for the Flight Service Station, Western Airlines, Northwest Airlines, other airport offices and a restaurant.

HAVRE: The Havre City-County Airport Board is planning on reconstructing a runway and taxiway and apron. This local, state and federal project will cost approximately \$213,000. The Montana Aeronautics Commission is assisting in the financing of this project with a loan in the amount of \$100,000. This project will probably be completed in the summer of 1963.

Astronaut John Glenn, Jr. was the first man to fly non-stop across the U.S. in a supersonic jet. He chalked up this "first" in a Chance Vought F8U in 1957.

Airline traffic over the North Atlantic has doubled within the last five years, from one million passengers in 1957 to 2.1 million in 1961. Air cargo shipments have tripled over the same period.

June 9, 1907. First building at any exposition devoted exclusively to aeronautics in the history of the world is dedicated at Jamestown Exposition.



## EXAM-O-GRAM NO. 13 WEIGHT AND BALANCE

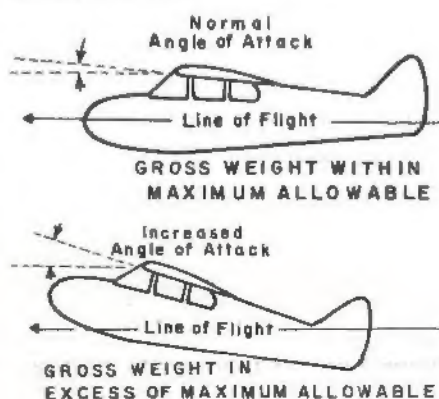
Loading the family automobile for a trip requires little serious planning. You can C-R-A-M as much luggage into the trunk as you have space, squeeze as many persons into the seats as you have room, and top off the gas tank with no thought given to Gross Weight or Center of Gravity. A similar approach to loading your "flying machine" could result in a serious accident.

**WHAT IS EXCESSIVE WEIGHT?** Assume that your airplane is a 4-place airplane with a baggage allowance of 120 pounds, a usable fuel capacity of 39 gallons, and an oil supply of 8 quarts. On a hypothetical flight you take on full fuel and oil servicing, toss the suitcases in the baggage compartment, and you and your three passengers eagerly climb aboard. This seems like a reasonable load, but if you had placed each of them on the scales you might have found that you and the passengers average 180 lbs. each (720 lbs.), and the four suitcases, 30 lbs. each (120 lbs.). The usable fuel load weights 234 lbs, and the oil 15 lbs. Assume, also, that the Weight and Balance Data for the airplane shows an **empty weight** of 1,325 lbs. and a maximum allowable **gross weight** of 2,200 lbs. NOW, add the weight of the useful load to the empty weight and compare the total to the allowable gross weight. (1,089 lbs. + 1,325 lbs. = 2,414 lbs.) . . . 214 lbs. excess!

**WHAT RESTRICTIONS ARE THERE ON WEIGHT AND BALANCE?** In many civilian airplanes it is not possible to fill all seats, baggage compartment, and tanks, and still remain within the approved weight and balance limits. If you do not wish to leave a passenger behind (a normal reaction) you must reduce your fuel load and plan on shorter legs enroute or cut down the baggage carried, or both. Frequently, restrictions are placed on rear seat occupancy with maximum baggage allowance aboard. By all means follow the Airplane Weight and Balance Form restrictions. The loading conditions and the empty weight of your particular airplane may differ from those shown in the Owner's Manual, es-

pecially if modifications have been made or equipment has been added to the basic airplane.

**IS CRUISE PERFORMANCE AFFECTED BY AN EXCESS LOAD?** At normal weight, the airplane requires a certain angle of attack to maintain straight-and-level flight at a given airspeed. To sustain a heavier load at that same airspeed, the angle of attack must be greater to provide the increased lift that is necessary. More power must be added to overcome the increased drag which results from the increased angle of attack. Additional power, in turn, burns more fuel, thereby reducing the range of the aircraft.

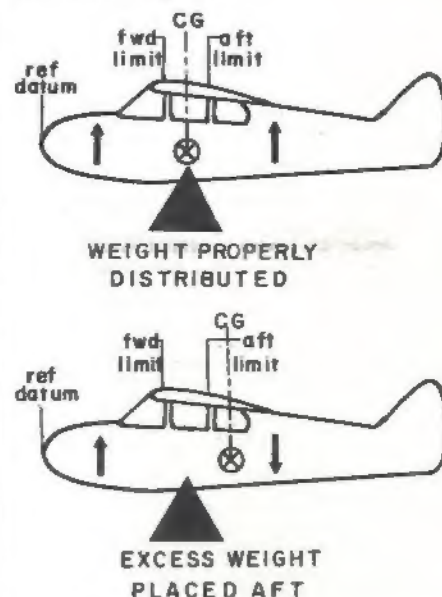


**IS CLIMB PERFORMANCE AFFECTED BY AN EXCESS LOAD?** Time to climb to a given altitude is lengthened, because extra thrust required to carry the additional weight limits the rate of climb and may limit the climbing speed, since this depends on the surplus power available. The additional time in climbing at the higher power setting also increases the fuel consumption.

**IS "G" FORCE TOLERANCE AFFECTED?** Assume that your airplane has a limit-load factor of 3.8 "G's". If the allowable gross weight is not exceeded, this means the wings can safely support 3.8 times the weight of the airplane and its contents. In accelerated flight (pull-ups, turns, turbulent air) the actual load on the wings would be much greater than the normal load, which of course results in much greater stresses in the wing structure. Overloading, therefore, has the effect of decreasing the "G" load capability of the aircraft and thus could result in the wing being

stressed to the point of popped rivets, permanent distortion, or structural failure.

**HOW IS AN AIRPLANE BALANCED?** An airplane, like a steel-yard scale, is in perfect balance when the weight is distributed in such a manner that it remains level when freely suspended. In an airplane, however, as long as the Center of Gravity lies anywhere within specified limits, balance can be maintained in flight. Flight with the CG outside of this range results in unsatisfactory or **dangerous flight characteristics**. loading an airplane then, is simply a matter of distributing the load so that the CG falls within the allowable range. This can be accomplished by arranging the load in accordance with the Center of Gravity Envelope provided for each airplane.



**DOES IMPROPER LOADING AFFECT SAFETY? YES!** When loading conditions cause the Center of Gravity to fall outside allowable limits, stability is adversely affected and erratic control forces may develop. Stalling speed, takeoff distance, and landing speed may be increased to the point of **actual danger**.

Due to the size of many baggage compartments there might be a tendency to fill them to capacity, ignoring the placarded baggage weight limitations. This could produce a Center of Gravity aft of allowable limits creating a highly dangerous flight condition.



proximately 100 aviation terms used by FAA and the aviation industry. The new definitions will apply only to new Parts as they are published under the recodification program. They do not apply to the existing regulations, where current definitions continue to apply until the Part is recodified.

A substantial reduction from the more than 450 terms now defined in approximately 1,200 places in the existing regulations was made possible by consolidating all required definitions in one section to apply to all regulations in the recodification program. Duplicate, self-explanatory and obsolete definitions have been eliminated. This first unit assures greater uniformity and simplifies any additions or deletions which may be made.

The new Parts will be issued in the next 12 to 18 months to replace all of the regulatory material of the Agency. The FAA has arranged with the Government Printing Office to sell the regulations, changes, and revisions by single purchase or subscription to one or more parts.

Part I, however, will be distributed without charge by the Government Printing Office. Interested persons who do not receive a copy within a reasonable time may obtain one by writing to the Superintendent of Documents, Washington 25, D. C. Included with this distribution will be an outline of new Parts as proposed, a list distributing the present regulations in the new Parts, and target dates for completion. Each new Federal Aviation Regulation will be subject to public comment prior to adoption.

The recodification program is proceeding on schedule, with July 1963 as the target date for completion. Part I of the new Federal Regulations became effective May 15, 1962.

### VFR APPROACH IN BAD WEATHER BLAMED IN NORTHWEST CRASH

CAB has blamed the crash of a Northwest Airlines' DC-4 on October 28, 1960, near Missoula, Montana on the pilot attempting a VFR approach during instrument weather conditions. Eight passengers and four crew mem-

bers died. The accident report said that the flight, enroute from Spokane to Missoula, encountered light snow as it entered the Clark Fork Valley. "The aircraft entered a steep left banking turn and the nose was raised in an apparent attempt to turn and climb out through an intersecting valley." The aircraft, however, continued to sink toward the ground, rolled to the left and crashed inverted. In attempting to turn and climb out of the valley, CAB said, control was lost. It noted that examination of the wreckage revealed that the aircraft was intact prior to the crash and that there was no evidence of the malfunction of any system.

### COMPLAINT DEPARTMENT

During the recent Sky Shield II exercise, the Control Tower at San Francisco International Airport received a telephone call from a woman complaining of the lack of noise of departing aircraft. Naturally, the Controller who took the call could not believe what he was hearing and asked the woman to explain. It seems that not only had she gotten used to the noise from planes going over her house, but her baby had evidently been able to fall asleep regularly during the early evening hours regardless of the number of aircraft that roared off into the night.

The woman actually insisted that the Tower send a jet over her house so that her baby would stop crying! The Controller patiently explained the reason for the lack of aircraft operations in the area and advised the woman that she would have to wait until the Sky Shield exercise was over before her child could have his visit from the sandman.

### NEW DEFINITION OF MAN

In the world of space technology, where an instrument panel is called a "command center display console," it was inevitable that man himself would be redefined. Working out the mathematics of man's movements during weightlessness, it was suggested that, for purposes of their equations, man "may be described as a non-symmetrical, fluid-filled sack of variable shape containing a large air bubble."

## 14TH ANNUAL FREE BEECHCRAFT SERVICE CLINIC LISTS 45 INSPECTION LOCATIONS

More than 1,700 owners of Beechcraft business airplanes are expected to take advantage of the 14th annual Beechcraft Service Clinic, offering free inspections at 45 locations throughout the U.S.

The unique clinic, sponsored by the Beechcraft distributor-dealer service organization, is designed to help owners increase operating efficiency through improved aircraft maintenance. This year's clinic is the largest ever, with 12 factory technicians participating.

More than 100 major items will be checked on Beechcraft Super 18, Queen Air, Twin-Bonanza, Baron, Travel Air, Bonanza, and Debonair models, without charge to owners. The "best maintained" plane in each distributor territory will be cited with a special certificate of award going to its owner. All Beechcraft owners throughout the country will be notified of the date when a factory team is scheduled to perform free maintenance checks at their nearby Beech sales and service facility.

Nearly every year has brought an increase in the number of aircraft inspected, according to Paul E. Allen, Beechcraft manager—parts and service operations, who started the clinic in 1949. Last year 1,600 owners received free checkups, with more than 15,000 planes being inspected since the program's inauguration.

The clinic is the only program of its kind and is nationally recognized for its contribution to better civil aircraft maintenance.

### ODE TO THE MECHANICS

Here's to the men with the greasy hand  
Who fuel our planes when we come in  
and land.  
Who fix the canopies, stop the leaks  
Change the tires, oil the squeaks  
Tend to the rigging to make them fly  
straight  
Wait by the planes when the pilots are  
late.  
Who smooth the scratches, rivet the panels,  
Check "Loud and Clear" on the radio  
channels.  
Who read all the write-ups and make the  
repairs,  
Check plastic and fabric for tatters and  
tears.  
Who pull the chocks and walk our wings  
And do a million and one little things,  
That make the airplanes safe to fly.  
So here's a salute to the hard working  
guy.  
From one of the fliers who too seldom  
ponder  
The men who keep us in the wild blue  
yonder.



## PILOTS AID SOLICITED

The Airport Division of this office would enjoy hearing from interested pilots telling us where they feel a new airstrip should be established.

We are asking for three choices listed in order of importance as you see it. We are asking that you make a brief statement below each giving the justification for your selections. List for your reasons such things as emergency,

recreational, and community service.

This survey does not necessarily mean that the Montana Aeronautics Commission will build an airport at your selected location. We have many requests on file now, therefore we feel that this survey will give us a better indication as to where the flying public feels an airport development is justifiable, and it will aid us a great deal in future planning.

Thank you.

CUT OUT AND SEND TO:

Montana Aeronautics Commission  
P. O. Box 1698  
Helena, Montana

I feel that an airport should be established at the following locations:

No. 1 Choice \_\_\_\_\_ Nearest Town \_\_\_\_\_

Reasons

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No. 2 Choice \_\_\_\_\_ Nearest Town \_\_\_\_\_

Reasons

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No. 3 Choice \_\_\_\_\_ Nearest Town \_\_\_\_\_

Reasons

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Name \_\_\_\_\_

Address \_\_\_\_\_

Date \_\_\_\_\_





### LIGHTED KNEE BOARD ANYONE?

An entirely new Knee Board, the Jepco KNE-NAV KN-3, is now available from Jeppesen Distributors and Dealers.

The KNE-NAV, complete with a light fixture, may be purchased for \$15.00. Without the light, the price is \$10.00. (The light fixture may be purchased separately for \$5.00 and easily assembled to the KN-3 by the user at a later date.)

The new light fixture utilizes two, standard one-inch diameter

type "C" flashlight batteries. It features an "on-off" switch which the user can assemble to the left or the right side of the board. The switch is of the rotating type to prevent inadvertent switching on or off. A ratchet action prevents mis-use. The light socket selects to red or white light and may be adjusted upward and downward by the user.

As with previous Jepco KNE-NAVs, the new model comes complete with knee strap, upper and lower clips, pad, pencil sharpener and pencils. Full information may be obtained from Jeppesen & Company, 8025 E. 40th Avenue, Denver 8, Colorado.

June 30, 1908. Air strength of the U.S. Army at this time is three officers and ten men—all in balloon troops.

Wanted: "A rocket-riding airman with the genius of an Einstein".

**FOR SALE:** G Bonanza, 2 Cessna 180's, Cessna 170B, 115 Champ 59 Tri Pacer, 59 Super Cub 95, write for details. Byron Bayers, Twin Bridges, Montana. Ph. 684-5465.

**FOR SALE:** Aeronca Sedan—Here's a steal—\$5,000 invested in this airplane—it's yours for \$3,295. Just spent \$1,600 on re-building and recovering the fuselage with ceconite. Metal wings, new control cables, new pulleys, new paint, new compass, new battery. Clean. VHF transmitter, low freq receiver with direction finder. Dec. annual. 119 total time 550 SMO. Contact Dr. Cromwell, Box 420, Livingston, Montana.

**WING INN CAFE** at Municipal Airport, Miles City, Montana open, serving short orders, dinners and very good coffee. Every thirteenth steak free.

The difference between an incident and an accident is often a matter of luck. But luck is a frail, undependable thing, and will not always let you come out smelling like a rose.

### MEMBER

### NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS

**PURPOSE:**—"To foster aviation as an industry, as a mode of transportation for persons and property and as an arm of the national defense; to join with the Federal Government and other groups in research, development, and advancement of aviation; to develop uniform aviation laws and regulations; and to otherwise encourage co-operation and mutual aid among the several states."



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